



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/535,165

06/02/2005

Hisatake Sano

A-496

1867

802

7590

09/09/2008

PATENTTM.US

P. O. BOX 82788

PORTLAND, OR 97282-0788

EXAMINER

ROSASCO, STEPHEN D

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

09/09/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/535,165	Applicant(s) SANO ET AL.	
	Examiner Stephen Rosasco	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 June 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/2/05</u> . | 6) <input type="checkbox"/> Other: _____ |

Detailed Action

Those drawings including Figs. 5-9 showing only the state of the Prior Art should be labeled as such.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 1 is rejected under 35 U.S.C. 102(e) as being clearly anticipated by Lee (5,700,603).

Lee addresses claim 1 (see claims) including - a mask for lithography, comprising a mask pattern formed on a central region of a membrane; an intermediate layer formed on the peripheral region of the membrane and surrounding the mask pattern; and a supporter formed on said intermediate material, a wall of the supporter meeting the intermediate material at a predetermined angle, wherein the mask pattern, the intermediate material, and the supporter are formed over one side of the membrane.

Claim 1-7 and 9-12 are rejected under 35 U.S.C. 102(e) as being clearly anticipated Yoshizawa (7,022,607).

Yoshizawa addresses claims (see claims and Figs. 1-3) including - a mask comprising: a membrane, at least one hole extending through said membrane; a support layer, at least one aperture extending through said support layer, said at least one aperture being self-aligned with said at least one hole, said at least one aperture being larger than said at least one hole; an assist layer, said support layer being between said membrane and said assist layer, said at least one aperture terminating at said assist layer; and a frame, said assist layer being between said support layer and said frame, an opening extending through said frame to said support layer, said opening being in alignment with said at least one hole, said opening being larger than said at least one aperture.

Therefore, Yoshizawa teach the use of a frame support peripheral to a central membrane that is integrally formed and used for electron beam exposure.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 8 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee (5,700,603) or Yoshizawa (7,022,607) in view of Ham (6,319,636).

The claimed invention is directed to a lithography mask blank comprising a substrate, having a shape of a substantially rectangular parallelepiped, of which the upper surface has a pattern region substantially at the center thereof and a peripheral region, wherein the pattern region and the peripheral region are in one plane.

And wherein the blank has a shape of a substantially rectangular parallelepiped, which has a lower surface provided substantially at the center thereof with an opening and a self-supporting membrane having a pattern region substantially at the center of the upper surface thereof corresponding to said opening, wherein the pattern region and a peripheral region around the pattern region are in one plane.

And wherein the fixing positions of said substrate with said frame substantially correspond to the reference points of a mechanism for fixing the transfer blank in a pattern writer or a cassette for housing the lithography mask blank.

Lee and Yoshizawa are included here as recited above.

The teachings of Lee or Yoshizawa differ from those of the applicant in that the applicant recites in claims 8 and 13 the limitation of the use of an absorber pattern.

Ham teach a cell projection mask comprising a membrane formed over a frame; and an absorber formed over the membrane, for absorbing or reflecting an electron beam, wherein the absorber is comprised of a silicon layer and includes at least one ion implanted layer in the silicon layer so as to form a barrier for inhibiting an electron beam from penetrating through the absorber such that the thickness of the absorber can be minimized.

Art Unit: 1795

It would have been obvious to one having ordinary skill in the art to take the teachings of Lee or Yoshizawa and combine them with the teachings of Ham in order to make the claimed invention because the use of an absorber or scatterer of a mask pattern is well known to be used in the art when dealing with e-beam exposure.

Conclusion

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Stephen Rosasco whose telephone number is (571) 272-1389. The Examiner can normally be reached Monday-Friday, from 8:00 AM to 4:30 PM. The Examiner's supervisor, Mark Huff, can be reached on (571) 272-1385. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/S. Rosasco/
Primary Examiner, Art Unit 1795

S.Rosasco
09/06/08